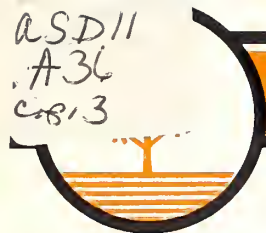


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FOREST RESEARCH NEWS

FOR THE MIDSOUTH

February 1973

SOUTHERN FOREST EXPERIMENT STATION, FOREST SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Forestry Scholarships Beckon Black Students

Scholarships for preforestry training at a predominantly black southern college.

Acceptance by a major university to complete degree requirements as a professional forester.

Summertime opportunities to work on one of the National forests.

All are possible under a program worked out through the cooperation of Tuskegee Institute in Alabama, the USDA Forest Service, and the Weyerhaeuser Company.



The preforestry program is at Tuskegee, and has recently been given new impetus by a \$200,000 grant from the Weyerhaeuser Company Foundation.

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UTILIZING SOUTHERN PINES DESCRIBED IN NEW HANDBOOK

A two-volume book, *Utilization of the Southern Pines*, has been published by Peter Koch, chief wood scientist at the Southern Forest Experiment Station.

It is USDA Handbook 420, and it was released in November by Secretary of Agriculture Earl Butz. Noting that it is the most comprehensive collection of information ever assembled on its subject, Mr. Butz predicted that it will become a standard reference for generations of researchers and industrial managers.

Its purpose is to describe the southern pines as industrial raw material and the processes by which they are converted to use. "The southern pines comprise the primary softwood timber species in the United States," Dr. Koch declares in his opening chapter. "Further, their relative importance is increasing." By the year 2000, he thinks, 51 percent of the softwood used in this country will come from the South, where vast acreages are capable of growing pine at better than a cord per acre annually.

Koch has been in charge of the Southern Station's timber utilization laboratory at Pineville, Louisiana, since 1963. His own research, and that of associated scientists, provided much of the information in the book. In addition, he reviewed literature dating back to the early 1900's. A third source was reviews prepared by

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PROCUREMENT SECTION
CURRENT SERIAL RECORDS



Dr. Peter Koch, right, discusses his new book, "Utilization of the Southern Pines," with Secretary of Agriculture Earl Butz in Washington, D. C.

Tuskegee, Cont'd from P. 1

To be used over a 5-year period, the funds are earmarked to provide for preforestry scholarships, to hire a full-time forestry professor, and to strengthen the program generally. It is hoped that the financial aid will attract black students and encourage them to enter forestry and related fields as professionals.

Preforestry training at Tuskegee began in 1968, when the USDA Forest Service assisted the Institute in developing the first such program in a predominantly black college. Need for the program was obvious. Only a very few Negroes were trained in forestry, a profession growing rapidly and offering a wide variety of job opportunities, especially in the South.

The curriculum is designed to prepare a student for a bachelor of science degree in forestry, wildlife management, fisheries, outdoor recreation, or landscape architecture.

Following 2 years in preforestry at Tuskegee, a student may transfer to one of several universities on a scholarship for 2 more years of professional training and a bachelor's degree. The University of California at Berkeley and the University of Michigan were the first to accept transfer students. Today the list of cooperating universities includes Iowa State and Colorado State. Others expressing interest include North Carolina State, Stephen F. Austin, Virginia Polytechnic, the College of Forestry of the State University of New York at Syracuse, and the University of Washington.

Two black students have graduated—one from the Uni-

versity of Michigan and one from Iowa State. One is working for the National Park Service, the other for the USDA Forest Service. Four more students are enrolled in the College of Natural Resources at the University of Michigan, and one began his junior year at Colorado State University in January.



Taking advantage of a summer work program under the Equal Opportunity Act, two of the students, spent last summer on a National forest in Idaho. They are Nathaniel Storey and Eurial Turner, both Alabamians who finished preforestry studies at Tuskegee before transferring to Michigan. Both admitted to some hesitancy about leaving a predominantly black community for jobs in a predominantly white profession in a strange section of the country. Not so next year, they say. They describe with enthusiasm the friendliness of the people they met, their fascination at finding snow high in the mountains in July, and their amazement over the clean air and water. Both

boys say they look forward to returning to Idaho next summer.

Interested persons may obtain more information about Tuskegee's preforestry either from the university or from the USDA Forest Service. Address inquiries to Tuskegee Institute, Department of Agricultural Sciences, Milbank Hall, Tuskegee Institute, Alabama 36088, or to the Southern Forest Experiment Station, 701 Loyola Avenue, New Orleans, Louisiana 70113.

In addition to providing preforestry training, the goals of the cooperative program at Tuskegee include developing a management plan for the Institute's 3,000 acres of forest land, conducting cooperative forest research, and teaching courses in natural resources management for all students interested in the environmental sciences.

Prescribed Burning and Air Quality

Is prescribed burning a significant factor in air pollution?

The Pacific Northwest Forest and Range Experiment Station, USDA Forest Service, has announced a research publication dealing with this question. The publication, "Forest Fuels, Prescribed Fire, and Air Quality," summarizes current knowledge about the physical and chemical properties of smoke from burning forest fuels and evaluates the significance of wood smoke in the environment.

Copies of the report may be obtained from the Pacific Northwest Forest and Range Experiment Station, P. O. Box 3141, Portland, Oregon 97208.

New Report Analyzes Alabama Forest Industries

Alabama is the leading supplier of pulpwood in the Gulf States, and mills within the State processed over 71 percent of the 1971 harvest.

Alabama is also one of the top producers of southern pine poles.

Forest industries in the State converted 85 percent of their wood residues into plant by-products that year. They also accumulated over 2 million tons of bark—and used less than two-thirds of it.

These are some of the facts found in a new report published by the Southern Forest Experiment Station of USDA's Forest Service. The author, Daniel F. Bertelson, based his analysis on data gathered from all primary forest industries using wood from Alabama.

He found that, although the number of plants had declined since a previous survey in 1962, total timber harvest has risen 70 percent. Alabama forests supplied 718 million cubic feet of roundwood during 1971. Pulpwood and saw logs accounted for 91 percent of the total. The increase in roundwood output is attributed to expansion of the pulping industry, introduction of southern pine plywood manufacturing, and an increase in the average size of sawmills.

Continuing a trend that began in the late 1940's, sawmills are becoming fewer but larger. Alabama's 323 sawmills in 1971 are about one-tenth the number in 1946 and slightly more than half

of those active in 1962. The portable sawmill, a common sight 25 years ago, is a thing of the past.

Construction of six new pulp-mills as well as expansion of old ones has more than doubled Alabama's pulping capacity from 5,093 tons per day in 1962 to 11,443 tons in 1971.

More than 1 million trees, mostly from the southwestern counties, were cut for poles in 1971. Baldwin County led, with Covington County second. Covington heads the list in commercial post production, followed by Marengo.

About two-thirds of the bark accumulated by Alabama forest industries was also used in 1971—mostly for industrial fuel.

Over 800,000 tons were wasted. County tabulations in Bertelson's report indicate that Mobile County led in using bark with 364,256 tons, leaving 19,923 tons unused. In some counties the percentage was almost reversed, with the greater portion being unused.

Considerable Forest Service research is being done to find profitable use for bark. The tremendous amount accumulated each year represents a great potential for added income to the State's forest industries.

In addition to county-by-county statistics, the report lists large and small sawmills, pulp-mills, veneer plants, post, pole and piling plants, and other miscellaneous plants in the State.

Copies are available from the Southern Forest Experiment Station, 701 Loyola Avenue, New Orleans, Louisiana 70113. Ask for "Alabama Forest Industries," Resource Bulletin SO-36.

Alabama forests supplied 718 million cubic feet of roundwood during 1971. (Photo courtesy of Gulf States Paper Corp.)



Plantation Growth: New Information For West Gulf Landowners

New information on growth and yield of pine plantations is now available for timber growers in the West Gulf Coastal Plain. And more is coming soon.

This is good news, because heretofore foresters have had to depend on data from the Southeast, where climate and soils are considerably different. For example, most Southeastern research plantations are on abandoned farmlands, while the majority of West Gulf sites have never been under plow. It is now well established that growth patterns differ greatly between the two types of sites. Moreover, rainfall in the Southeast is usually better distributed through the growing season than in more westerly regions, where summer droughts are common. And slash pine, though not native west of the Mississippi River, is extensively planted there and grows fast.

Over the past two decades scientists at Alexandria, Louisiana, have established 775 permanent plots in Louisiana, Texas, and Mississippi. The plots compare planting spacings, timing of first thinning, intensity of thinning in stands of commercial size, and precommercial thinning. More plots are being sought.

In two recent Research Papers (Nos. SO-69 and SO-70), W. F. Mann, Jr., and T. R. Dell reported how tree spacing influences yields of slash and loblolly pine on a wide array of sites. Hans G. Enghardt, a research forester assigned to the Southern Station by the Louisi-

ana Forestry Commission, collaborated with Mann on two additional papers (SO-76 and SO-82) about the growth of slash pine after thinning. In one, timing and intensity of thinning were shown to have an important effect on growth. In the other, a wide range of stand densities was related to growth.

Earlier articles by Enghardt, Mann, and H. J. Derr gave information on how plantation spacing and degree of thinning affects growth of loblolly and longleaf pines.

Seeded stands, whether established by nature or by man, are sometimes so dense that they must be thinned before the trees can grow large enough for sale

as pulpwood. R. E. Lohrey of the Alexandria group has shown that loblolly pine must be reduced to 1,000 or fewer stems per acre if diameter growth is to be boosted appreciably. Strip thinnings, made by cutting swaths through the stand with heavy machines, were as effective as more laborious methods in which trees were selected and removed individually (Research Note SO-139). Similar information for slash pine will be published soon.

Another long-term study, by Eugene Shoulders, is comparing growth of planted loblolly, slash, longleaf, and shortleaf

Continued on P. 5, Col. 2





Plantation, from P. 4

pine on individual soil types in Louisiana and Mississippi. It consists of more than 100 installations that are at least 15 years old.

The network of plots will become more valuable as time goes by. As a next major step, Mann's group plans to develop equations relating growth of unthinned slash and longleaf plantations to site quality, stand density, and tree age. The equations, which should be applicable throughout the West Gulf, will be followed by ones for loblolly and longleaf pines. Since the plots are permanent, it will be possible to make follow-up analyses at any time.

At least in part because the present stands contain trees above the average in size, the West Gulf has half of all the softwood plywood mills in the South. It also is a major area for sawmilling. The plots will provide information on management for pulpwood, saw logs, and plywood bolts.

"The research probably isn't going to uncover any new silvicultural principles," Mann says. "But it will give land managers specific and accurate data on yields they can expect by exercising various management options on their own sites. They will know how to take it from there."

Copies of the publications issued so far are available on request to the Southern Forest Experiment Station, 701 Loyola Avenue, New Orleans, La. 70113.

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The Forest Service's Natural Research Area System now totals almost 87,000 acres in many parts of the country.

PLANT A TREE—

"Plant a tree and watch it grow" ran the lyrics to a lilting tune adopted as the official song of the National Tree Planting Conference in New Orleans October 22-26.

Representatives of industries, agencies, conservation associations, and just plain interested individuals got together and heard State foresters pledge to plant 40 million acres of trees during the next decade—more area than has been planted in the entire history of the U. S. The need for trees in an urban environment as well as on rural acres was recognized.

Putting words into action, the conferees planted a live oak tree in the heart of downtown New Orleans, symbolizing a commitment to divest the area with a grove of "Trees of America." Destined to become Louis Armstrong Memorial Park, the area lies between historic Perserverance Hall and the city's new Theatre for the Performing Arts.

The American Forestry Association, American Association of Nurserymen, and the USDA Forest Service pledged their help in developing a mid-city park adjacent to the French Quarter and only 5 blocks from Canal Street and the downtown business area.

Taking part in the ceremony were, left to right: Charles A. Connaughton, President of the American Forestry Association; Judge Ernest N. Morial, Chairman of the Louis Armstrong Memorial Park Committee; New Orleans Mayor Moon Landrieu, and Forest Service Chief John R. McGuire.

DIRECTORY LISTS SEED DEALERS

A directory of dealers selling the more common forest seeds and plants has been published by the USDA Forest Service. It is the first such listing since 1966.

The 107 dealers are listed alphabetically according to State, with their addresses, telephone numbers, and a code number.

Seeds are then listed alphabetically according to species. Both common and scientific names and code numbers indicate dealers who sell each species.

Most of the dealers will furnish data on seed on request, and some dealers certify seed. The directory is published as a convenience for purchasers of seed and planting stock.

Single copies may be ordered from the Southern Forest Experiment Station, 701 Loyola Avenue, New Orleans, Louisiana 70113.

OF FORESTS AND FLOODS—

Forest influence on floods has been discussed for many years, with conservationists, engineers, scientists, and land managers sometimes differing.

Factual knowledge to back varying opinions has been limited.

Two forest scientists at the Northeastern Forest Experiment Station in Upper Darby, Pennsylvania, have assembled available information on forest-flood relationships in the Eastern United States. Unlike many previous writers, they have re-

Continued on P. 8, Col. 2

Wood Symposium

The ultrastructure of wood and wood products as revealed in the electron microscope will be the subject of a symposium at Alexandria, Louisiana, February 26-28. The Biology and Pulp and Paper Technical Committees of the Forest Products Research Society are sponsoring the meeting in cooperation with the Southern and North Central Forest Experiment Stations.

Dr. W. C. Côté, Jr., of New York State University, Syracuse, will give the keynote address on "Wood Anatomy and Ultrastructure—The Focus on Wood Science and Technology." The working sessions will emphasize the practical application of ultrastructural studies. The first will deal with anatomy and fundamental properties of wood. The second will be on applications of electron microscopy to pulp and paper. The third will be on applications of electron microscopy to wood science.

The complete program, pre-registration forms, and additional information about the symposium can be obtained from Dr. C. W. McMillin, Southern Forest Experiment Station, 2500 Shreveport Highway, Pineville, Louisiana 71360.

CARTOONS TELL EARTH'S STORY

A colored cartoon booklet, "The Earth, Our Home in Space," tells how the earth was formed and how it evolved into a habitable environment.

Designed primarily for young people, it relates how resources of the earth provide man with food, fiber, heat, and energy, and how man must conserve and manage these resources if they are to be enjoyed in the future.

The Soil Conservation Society of America published the 16-page booklet, the eighth in its Better Environment Series of educational cartoon-type publications. Single copies can be obtained for 25 cents by writing the Soil Conservation Society of America, 7515 N. E. Ankeny Road, Ankeny, Iowa 50021. Discounts on quantity purchases are available on request.

AIR UNFIT FOR TREES

To help urban, suburban, and rural tree owners know about air pollution's effects on trees, the USDA Forest Service has published a booklet, "Our Air: Unfit for Trees."

How air pollution affects individual trees depends on many factors, including the type and concentration of the pollutant, length of exposure, and the tree's health, stage of growth, and genetic makeup.

The booklet lists known responses by both hardwoods and softwoods to various airborne pollutants.

The information is from research by Dr. Leon S. Dochinger of the Northeastern Forest Experiment Station's Forest and Insect Disease Laboratory at Delaware, Ohio.

For copies of the booklet, request "Our Air: Unfit for Trees" from Information Services, Northeastern Forest Experiment Station, Upper Darby, Pennsylvania 19082.

Southern Forests Support Booming Timber Industry

The South has experienced an unprecedented expansion of forest products industries in the last 10 years, according to a study recently published by the Southern Forest Experiment Station of the USDA's Forest Service.

According to timber analysts Herbert S. Sternitzke and Joe F. Christopher, wood pulping capacity has expanded by the equivalent of 37 new mills, with more to come. A flourishing pine plywood industry, established in 1963, now consists of 52 multimillion dollar mills. Pine lumber manufacture has also increased.

Because this expansion has boosted output of industrial wood products by nearly 50 percent in the South, Sternitzke and Christopher undertook an analysis of the forest situation to determine if timber supplies are ample.

They found that southern forest land suitable for growing industrial wood totals 193 million acres, down 4 percent since 1963. Much of the loss was in hardwood forests, the result largely of reservoir construction and of clearing for soybean farming.

Despite the shrinking acreage, southern forests today contain more timber than before. Pine has increased by 20 percent. Gains in both total volume and average tree size have been especially large in States west of the Mississippi River.

Hardwood volume has risen too, partly because growth in the Appalachian Mountains offset clearing in the lower Mississippi Valley. But the overall

increase is made up of trees that are generally too small to be suitable for standard veneer or high-grade lumber.

Sternitzke and Christopher conclude that industrial expansion is not depleting southern forests.

Can further expansion be sustained?

Yes, they think, if forestry is intensified.

Pines continue to grow faster than they are being cut. Total inventory is 80 billion cubic feet. Growth each year is more than 5 billion cubic feet, while the yearly harvest is barely 4 billion. Further enlargement of pine-using industries therefore is likely, especially in the West Gulf region. This region consists of Arkansas, Louisiana, east Texas, and east Oklahoma.



Southern pines continue to grow faster than they are being cut.

In hardwoods, the outlook is less reassuring. "Although not yet widely recognized, the razing of Delta forests since the early sixties has fundamentally altered the hardwood supply situation in the South," the authors declare. Improvement would require large-scale efforts to establish desirable trees, to reserve potentially valuable young trees until they reach large size, and to remove cull trees that are choking many stands. Some attempts are being made, but so far on too small a scale to be of much benefit. The authors believe that ultimately the rapidly increasing demand for hardwood pulpwood is likely to be the greatest single economic inducement to the betterment of southern hardwood forests.

On the average, Sternitzke and Christopher conclude, southern forests are growing usable wood at only half their capacity. Depending on the size of the investments in timber growing and manufacturing, they say, the 1970's may be the decade of decision for the southern forest products industry.

The study, published in the *Forest Products Journal*, is available on request to the Southern Forest Experiment Station, USDA Forest Service, 701 Loyola Avenue, New Orleans, Louisiana 70113.

Pine Handbook, from P. 1

authorities in areas where the author's personal expertise did not extend.

The first volume begins by describing main features of living trees, with some indication of their total volumes and growth characteristics. All ten

southern pine species are included. Following chapters deal with tree physiology and wood anatomy, and with chemical, physical, and mechanical properties.

Since a major objective of wood technologists is to achieve utilization of complete trees, this volume also characterizes roots, bark, and needles. When research for the book began some 8 years ago, about 30 percent of the total weight of tree parts, including roots, was converted into products. Koch predicts that this percentage will be doubled by 1980. He points out that full use of trees that are harvested will reduce the number that have to be removed from the forest.

The second volume is devoted to manufacturing processes, but closes with a chapter on measures and yields of products and residues.

There are more than 600 charts and photos, numerous tables, and a 44-page index. Each chapter is accompanied by an extensive bibliography.

The set may be purchased for \$11.25 from the U.S. Government Printing Office, Public Documents Department, Washington, D.C. 20402. Personal checks are acceptable.

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Industries in Oregon produce 1½ to 2 million tons of bark annually.

Forests and Floods, from P. 6

viewed the data in the light of research results and current forest protection and management policies. The material deals with forested regions east of the 100th meridian.

Some of their conclusions may be controversial, because they disagree with certain long-accepted beliefs. Following are some of their general conclusions:

The forest is the best of all possible natural covers for minimizing overland flow, runoff, and erosion.

With reasonable care, the forest can be cut with little detriment to its site-protecting capability.

Under sustained yield forest management, and with the great diversity in age classes of trees on privately owned land, the extent of forest cutting offers no flood threat.

Current levels of forest burning and woodland grazing are not sufficiently widespread to generate damaging floods.

The flood-reduction role of the forest can be realized through continued fire protection and careful logging, and can be enhanced by reforestation of abandoned land.

Present trends in land use suggest no widespread deforestation of forested flood-source headwaters in the foreseeable future.

Details of the study have been published in a 94-page booklet, "Forests and Floods in the Eastern United States" by Howard W. Lull and Kenneth G. Reinhart. Copies are available from the Northeastern Forest Experiment Station, 6816 Market Street, Upper Darby, Pennsylvania 19082.

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Japon received 202 million board feet, or 96 percent of the total logs exported during August from Washington, Oregon, northern California, and Alaska forests.